

UNIVERSITY OF CALIFORNIA

VIRUS LABORATORY
BERKELEY 4, CALIFORNIA

December 3, 1954

*received 7.12.54
- vaccine in refrigerator*

Dr. Rosalind Franklin
Birkbeck College Crystallography Laboratory
(University of London)
21 Torrington Square
LONDON, W. C. 1, England

Dear Dr. Franklin:

Thank you for your recent letter. We are delighted that you are willing to take a look at the cucumber virus and have enclosed a pellet of CV4 for your examination. Enclosed also is the sample of iodinated TMV from Dr. Fraenkel-Conrat, who is writing you about it.

Now I shall try to answer some of your questions. We have actually settled on a number of threonine end groups for TMV which is different from any of those mentioned in your letter. From careful determinations by three different methods, Harris and I feel that the value 2900 ± 100 per 50×10^6 is the best one that we can get from the carboxypeptidase work. This is the figure which will actually appear in all our published work, with the exception of the note in Nature. This, of course, gives a molecular weight for the subunit of about 17,000. This value actually agrees with the one calculated from the cysteine content even closer than the previous value. Dr. Fraenkel-Conrat has some new data on the cysteine content which may result in a revision of that figure but, if so, it would be in the direction of making the molecular weight of the subunit larger rather than smaller; so I am afraid that this is the best we can do with our present data, and I am sorry that they do not coincide better with your X-ray diffraction data. With respect to the homogeneity of the virus subunits, we can only say that we have no evidence in our data which would militate against the idea of identical subunits of molecular weight of about 17,000. The amino acid data would provide for approximately integral numbers of each type of amino acid residue in such a unit although it must be admitted that the precision of the amino acid analyses is not good enough to push this sort of calculation very far. The complete reference to my article is "Advances in Virus Research", Vol. II, pages 153-182, 1954. The paper by Fraenkel-Conrat and Singer is in the Journal of the American Chemical Society 76, 180, 1954.

Returning now to the CV4, we should be glad to provide you with more material, of a different kind of preparation if that should seem advisable after you have worked with the material.

It was nice to visit with you while you were in Berkeley and to hear about your interesting work. We wish you the best of luck as you continue your studies.

Yours sincerely,

C. A. Knight
C. A. Knight

CAK/mla